1.1 INTRODUCTION

This Application for Certification (AFC) for the Pastoria Energy Facility (PEF) 1x0 Expansion (hereinafter referred to as PEF Expansion) project has been prepared in accordance with the California Energy Commission's (CEC's) Power Plant Site Certification Regulations (August 2000). This Executive Summary provides an overview of the project in accordance with Appendix B, Section (a) of the CEC regulations.

On November 30, 1999, the Pastoria Energy Facility, LLC (Applicant) filed an AFC with the CEC to construct and operate a 750 MW power facility at the Pastoria site (99-AFC-7). The facility license was approved on December 20, 2000. Construction of the 750 MW PEF was initiated in May 2001. Commercial operation of the first 250 MW of the facility is expected to be on-line in the Spring of 2005 with commercial operation of the 500 MW commencing in Summer 2005.

In February 2001, PEF, LLC filed an AFC to construct and operate an additional 250 MW unit at the PEF plant site. The AFC process was suspended in January 2002.

This application seeks authority to construct and operate an additional 160 MW at the same 31-acre Pastoria site that was analyzed and licensed in 99-AFC-7. This addition will require minimal changes to the existing PEF. No changes, realignments, or additions are proposed for the fuel gas supply pipeline, water supply pipeline, or electric transmission line to Pastoria Substation. The PEF Expansion will not result in any significant adverse environmental impacts and it will be consistent with all applicable laws, ordinances, regulations, and standards (LORS).

With the addition of 160 MW to the 750 MW of existing PEF, the total nominal output of the facility will be 910 MW. As explained in Sections 3.0 and 4.0 of this AFC, one of two transmission upgrades is necessary for the 910 MW to enter the grid in Summer 2007. PEF, LLC is discussing the interconnection alternatives with the California Independent System Operator and has filed the interconnection study request with Southern California Edison.

A key feature of the PEF Expansion project is the accommodation of the 160 MW expansion within the 31-acre site previously analyzed in 99-AFC-7.

1.2 PROJECT OVERVIEW

The proposed PEF Expansion incorporates one additional natural gas-fired, F-class combustion turbine generator (CTG) operating in simple cycle mode into the original three-unit PEF, for a total of four CTG units. The additional CTG is installed in a "1x0" configuration; meaning, one CTG and zero steam turbine generators. Figure 3.1-1 illustrates the existing PEF plant site with the PEF Expansion equipment arrangement shown in red. The figures referenced in this Executive Summary are contained in this section as well as in their respective AFC sections.

The existing PEF site is approximately 31 acres in size and is adjacent to an existing gravel quarry. The site is located approximately 30 miles south of downtown Bakersfield, and approximately 6.5 miles east of Interstate 5 at the base of the Tehachapi Mountains on land owned by Tejon Ranchcorp. Refer to Figure 1.2-1 for a regional overview of the PEF site. Figure 3.1-2 shows a photograph of the existing PEF from the plant access road looking north.

The PEF Expansion will use a two-acre portion of the same 25-acre construction laydown area identified in 99-AFC-7**.** It will also use the existing PEF project ancillary facilities to supply water, provide natural gas and access to the site, and interconnect the electrical output to the grid. Table 1-1 below summarizes the facility additions proposed in this AFC as well as those features of 99-AFC-7 that will remain unchanged.

TABLE 1-1
SUMMARY OF PEF EXPANSION MODIFICATIONS

Component	Change
One 1x0 160 MW F-class combustion turbine generator	New
One SCR and exhaust stack	New
Existing PEF circulating water system	Unchanged
Existing water treatment system	Unchanged
One generator step-up transformer	New
Existing 230 kV switchyard	One new circuit breaker
Existing 1.38-mile electrical transmission line interconnection to the Pastoria Substation	Unchanged
Existing 14.01-mile fuel gas supply pipeline connecting to the Kern River/Mojave Pipeline	Unchanged
Existing zero liquid discharge water elimination system	Unchanged
Existing 0.15-mile water supply line from the Wheeler Ridge Maricopa Water Storage District	Unchanged
0.85-mile access road to the plant site from the Edmonton Pumping Plant Road	Unchanged

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PLAN VIEW

GENERAL NOTES

NEW EXPANSION EQUIPMENT SHOWN IN RED.

LEGEND

1. ELECTRICAL SUBSTATION AREA
2. PLANT SWITCHYARD CONTROL BUILDING
3. GENERATOR STEP-UP TRANSFORMER
4. UNIT AUX. TRANSFORMERS
5. EXCITATION TRANSFORMER
6. FILTER PRESS
7. 480V TRANSFORMERS
8. DEMINERALIZED WATER PUMPS
9. ST GENERATOR VT & SURGE CUBICLE
10. ISO-PHASE BUS DUCT
11. PACKAGED ELECTRICAL AND ELECTRONIC CONTROL CENTER (PEECC)
12. GT GENERATOR
13. GT AUXILIARY PACKAGE
14. ISOLATION TRANSFORMER (1475)
15. GAS TURBINE AIR INLET FILTER
16. GENERATOR BREAKER
17. GAS TURBINE (GT)
18. STANDBY NATURAL GAS EMERGENCY GENERATOR
19. BRINE CONCENTRATOR & CRYSTALIZER EQUIP
20. ST GENERATOR
21. STG LUBE OIL SKID/HYDRAULIC POWER UNIT
22. HERO WASTE TANK (450,000 GAL.)
23. GLAND STEAM CONDENSER/EXHAUSTERS
24. DEMINERALIZED WATER TRAILER
25. STEAM TURBINE (ST)
26. CONDENSER VACUUM PUMPS
27. CONDENSATE PUMPS
28. CONDENSER
29. FOGGING SYSTEM
30. FUEL GAS CNTRL VLVE STATION & INLET SCRUBBER
31. HR BLOWDOWN TANK
32. STEAM GENERATOR (HRSG)
33. FUEL GAS COALESCING FILTERS
34. BOILER FEED PUMPS
35. HRSG STACK
36. CEMS/HR CONTROLS/DELUGE BUILDING
37. WAREHOUSE
38. ADMINISTRATION
39. RAW WATER/FIRE WATER STORAGE TANK (850,000 gal)
40. FIRE PUMPS
41. CIRCULATING WATER PIPING
42. CABLE TRENCH
43. EQUIPMENT DRAIN SUMP
43A. CHEMICAL SUMP
43B. WASTE RECYCLE SUMP
44. DEMINERALIZED WATER STORAGE TANK-750,000 GAL
45. WATER TREATMENT BUILDING
46. DETENTION POND
47. AUXILIARY COOLING WATER PUMPS
48. CIRCULATING WATER PUMPS
49. MAIN ELECTRICAL EQUIPMENT BLDG
50. OIL/WATER SEPARATOR
51. STG/COOLING TOWER ELECTRICAL EQUIPMENT BLDG
52. COOLING TOWER
53. GT DRAIN SUMP
54. SEPTIC SYSTEM/LEECH FIELD
55. POTABLE WATER PUMPS
56. SERVICE WATER PUMPS
57. FIRE PROTECTION DELUGE HOUSE
58. COOLING TOWER CHEMICAL STORAGE
59. CTG WATER WASH SKID
60. LCI/GENERATOR EXCITATION COMPARTMENT INCLUDES GENERATOR EXCITATION FOR 1 CTG
61. CABLE TAP BOX
62. DC LINK REACTOR
63. FIRE PROTECTION CO2 SKID
64. AMMONIA STORAGE TANKS
65. OWNER SUPPLIED BULK HYDROGEN STORAGE
66. ELECTRICAL MANHOLE
67. EQUALIZATION TANK (500,000 GAL)
68. NEUTRAL GROUNDING TRANSFORMER/RESISTOR CUBICLE
69. WAC WASTE TANK (200,000 GAL)
70. NaOZ WASTE TANK (300,000 GAL)
71. REACTOR CLARIFIER
72. DEAERATOR
73. SLUDGE THICKENER
74. EQUALIZATION FORWARDING PUMPS
75. AMMONIA INJECTION SKID
76. WASTE TRANSFER PUMPS
77. CHEMICAL AREA
78.
79. SERVICE WATER PUMPS
80. COOLING TOWER MAKE-UP PUMPS
81. FIRE WALL
82. ZLD BUILDING
83. MIXED BED TANKS
84. TRASH RECEPTACLE
85. RETENTION POND
86. FUEL GAS SCRUBBER
87. FUEL GAS PERFORMANCE HEATER
88. BOILER FEED WATER LEAK DETECTION VESSEL
89. MAINTENANCE SHOP
90. CLEARWELL
91. CO2 AND HYDROGEN BOTTLE RACKS
92. FUEL GAS HYDROCARBON FLASH/STORAGE TANK
93. STEAM TURBINE DRAINS TANK
94. FUEL GAS ELECTRIC HEATER
95. FIN-FAN COOLER

60 30 0 30 60 90 120

SCALE
1" = 60'-0"

Pastoria Energy Facility Expansion	**Source:** CALPINE® Drawing #PA-GEN-DC-C1-0001 Rev A Dated: 2/25/05	**Figure 3.1-1.** PEF EXPANSION GENERAL ARRANGEMENT	April 2005

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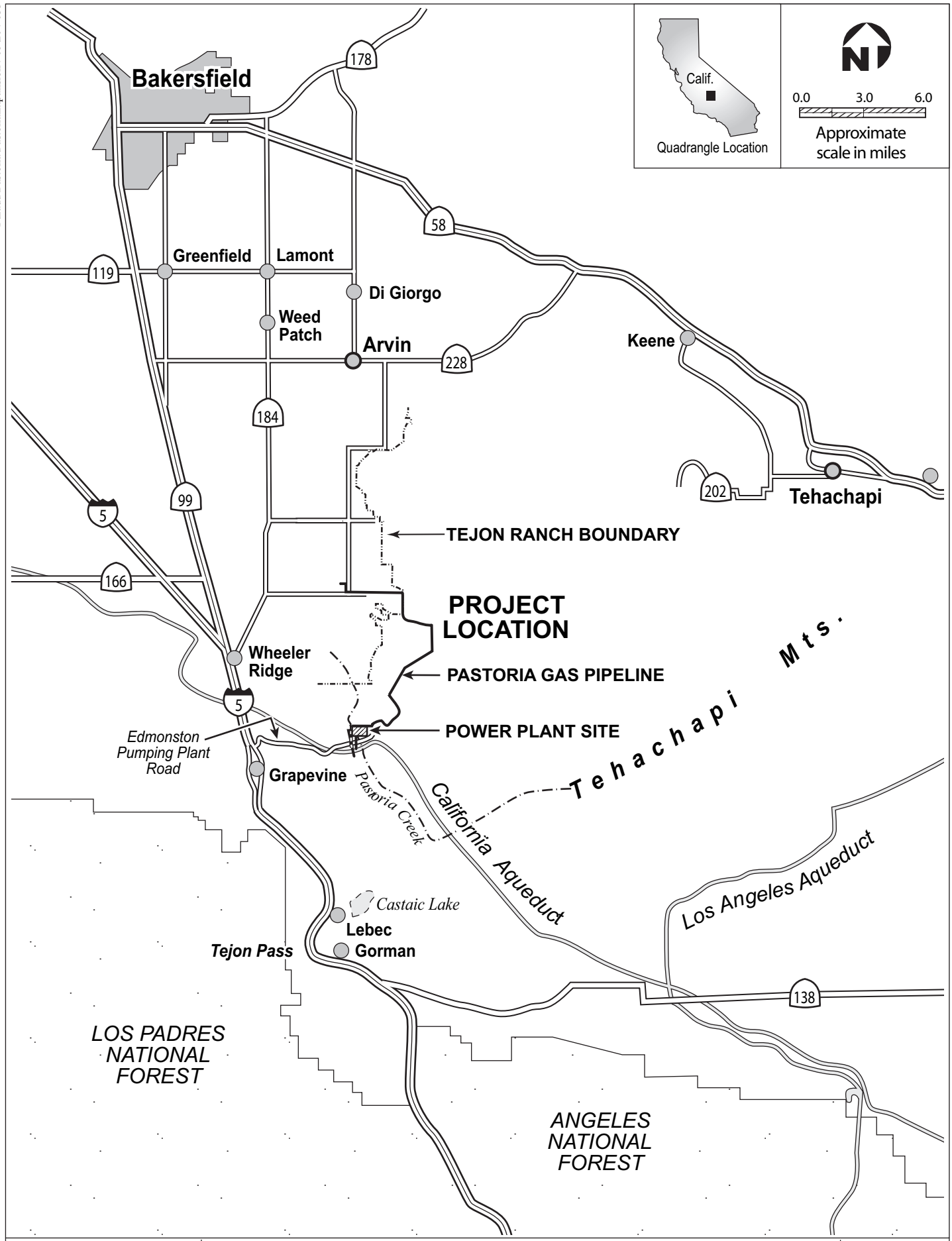

Pastoria Energy Facility Expansion	**Figure 1.2-1.** REGIONAL OVERVIEW	April 2005

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Pastoria Energy Facility Expansion	Source: CALPINE®	**Figure 3.1-2.** PHOTOGRAPH OF EXISTING PEF FROM PLANT ACCESS ROAD	April 2005

The proposed PEF Expansion will add a nominal 160 MW of electricity to the existing PEF. As with the existing PEF project, electricity from the PEF Expansion will be sold into the deregulated electrical market either through bilateral contractual arrangements or through the merchant market. The location of the PEF site also provides close proximity to the Department of Water Resources Edmonston Pumping Station to allow the State of California to contract for the supply of electricity in the future.

The plant will continue to use Best Available Control Technology (BACT) to minimize gas turbine emissions. To achieve BACT, the PEF Expansion proposes to install state-of-the-art, dry low NO_x (DLN) combustors in combination with selective catalytic reduction (SCR) to control NO_x. CO and VOC emissions will also be controlled by the DLN combustors.

This AFC has been prepared in accordance with the CEC's "Rules of Practice and Procedure and Power Plant Site Certification" and provides:

- A detailed description of the proposed PEF Expansion project
- An assessment of the anticipated project impacts on the existing environment
- A commitment by the Applicant to apply the applicable Conditions of Certification for the existing PEF to mitigate project impacts for the PEF Expansion
- A discussion of compliance with applicable laws, ordinances, regulations, and standards

The remainder of this Executive Summary encapsulates the more detailed information presented in the balance of the AFC. Additionally, Section 1.8 provides a summary "Reader's Guide" of how this AFC is organized.

1.3 FACILITY LOCATION AND DESCRIPTION

1.3.1 Facility Location

The existing PEF site, including the adjacent construction laydown area, is located on Tejon Ranch in Kern County, California. The regional location is shown on Figure 1.2-1. Specific locations of the project components are shown on Figures 3.1-4 and 3.1-4A. The existing PEF site is approximately 31 acres in size and is located in a part of Township 10 North, Range 18 West, which is the historic El Tejon land grant area.

As part of 99-AFC-7, the Applicant, in cooperation with Tejon Ranchcorp, processed a Tentative Parcel Map to Kern County (PM 10694). The approved Parcel Map (PM 10694) has been submitted to the CEC under separate cover as part of the PEF Permit Book.

The existing PEF site is located approximately 0.85 mile north of the California Aqueduct and about 0.75 mile north of the Edmonston Pumping Plant Road. As part of the existing PEF project, an approximately 0.85-mile-long access road was constructed to connect the plant site with the existing Edmonston Pumping Plant Road. The area surrounding the existing PEF site is currently undeveloped, vegetated with non-native grassland, and is used for cattle grazing and agricultural operations. The final site grade averages about 1069 feet above mean sea level (msl).

Pastoria Creek flows in a northerly direction and is located about 1000 feet west of the PEF site. Pastoria Creek (including tributaries) is the natural drainage path for runoff in the site area. Site grading contours, including drainage control berms, will provide for control of stormwater drainage and flows in the site area. Based on hydrologic studies performed for the PEF project, it was determined that the PEF site is not located in a 100-year flood plain. Groundwater levels in the project area are generally greater than 180 feet below ground surface.

1.3.2 Facility Description

The proposed PEF 1x0 Expansion design incorporates one F-class combustion turbine generator (CTG) operating in simple cycle mode into the existing PEF project, as shown in Figure 3.1-1. The facility will utilize proven gas turbine technology that is currently in use at the PEF and in other locations around the country. The additional unit is expected to have an overall availability of 95 percent or higher and could operate up to 8760 hours per year. The unit will produce a nominal 160 MW.

The exhaust stack will be 131 feet tall (the existing PEF stacks are 150 feet). The control of NO_x and CO emissions from the CTG unit will be achieved using BACT/Lowest Achievable Emission Rate (LAER). The unit will meet stack emission permit requirements for NO_x of 2.5 ppmvd at 15 percent O_2, and for CO of 6.0 ppmvd at 15 percent O_2, both on a one hour rolling average.

1.3.3 Fuel Gas Supply

The proposed project plans to use natural gas supplied via the existing PEF 14.01-mile long 20-inch diameter interconnection pipeline to the existing 42-inch diameter Kern River/ Mojave pipeline. The existing line is pressurized at 700-900 psig. The existing PEF and PEF Expansion will utilize up to an estimated 165 million standard cubic feet per day of pipeline quality natural gas.

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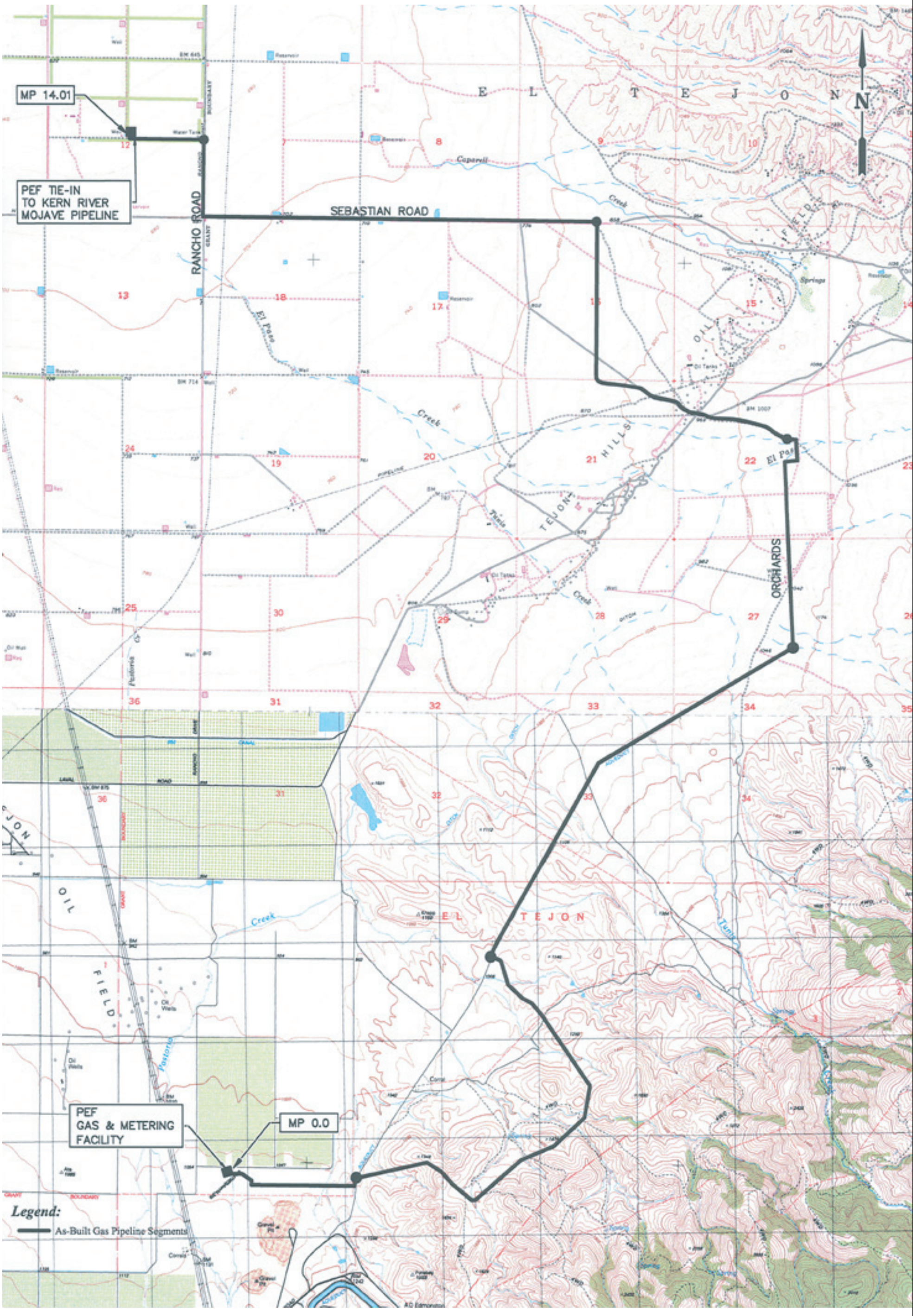

Pastoria Energy Facility Expansion	Source: SPEC SERVICES	**Figure 3.1-4.** LOCATION OF EXISTING PEF FUEL GAS SUPPLY PIPELINE	April 2005

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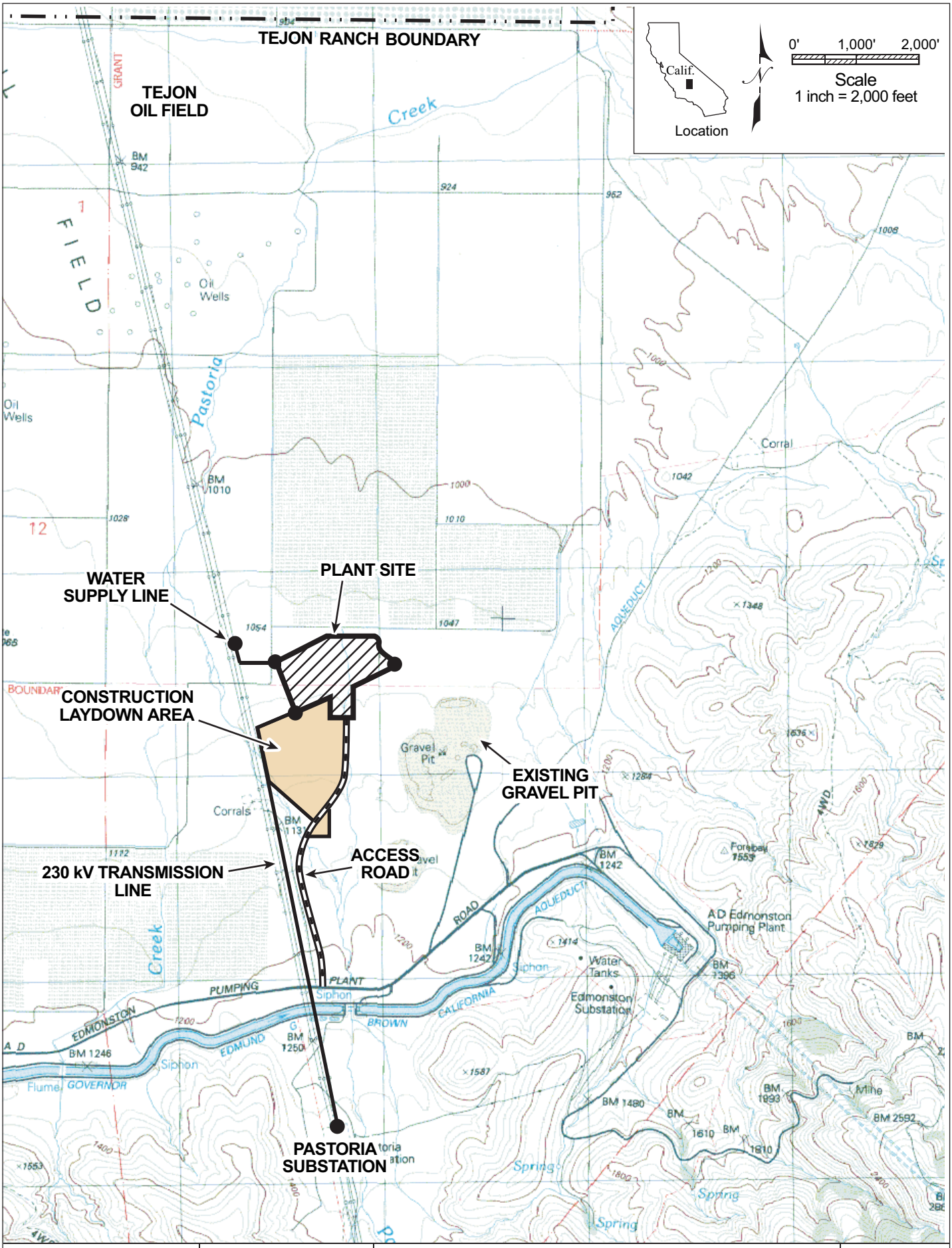

Pastoria Energy Facility Expansion	**Source:** *U.S.G.S. 7.5' topographic quadrangle:* Pastoria Creek, CA Copyright (c) 1997 Horizons Technology, Inc.	**Figure 3.1-4A.** LOCATION OF EXISTING PEF WATER SUPPLY PIPELINE AND TRANSMISSION LINE	April 2005

1.3.4 Water Supply and Discharge

The PEF Expansion project will require a minimal amount of water, on the order of approximately 66,000 gallons per day (up to 55 acre-feet per year). Water supplied to the project will be used for CTG inlet evaporative cooling and for CTG auxiliary cooling. No additional tank storage is required to maintain the five-hour reserve and meet peak make-up water requirements of the PEF Expansion. The existing PEF water treatment systems will accommodate the PEF Expansion with little or no modification.

The existing PEF is located within the Wheeler Ridge Maricopa Water Storage District (WRMWSD). WRMWSD has indicated that it would be able to provide PEF and PEF Expansion with its necessary water demand while also meeting the demand of its current customers. Agreements detailing the supply and water reserves established for the project are contained in supplemental documents filed in support of the PEF (99-AFC-7). A detailed description of the project water supply prepared by the CEC staff is included in Section 9.0 of this application. The project will be supplied from an existing WRMWSD line identified as 14-G. The length of this connection is approximately 800 feet and is shown on Figure 3.1-1.

During normal operation, all demineralized water requirements will be met with recovered water from the zero liquid discharge wastewater treatment system.

1.3.5 Transmission Facilities

The PEF Expansion will utilize the existing PEF 1.38-mile long, 230 kV transmission line connecting to the existing SCE Pastoria Substation.

1.4 PROJECT SCHEDULE

Project construction will take place after completion of the PEF project and is expected to require twelve months of construction activities. The first 250 MW of the approved 750 MW PEF is expected to be on-line and in commercial operation in Spring 2005, with the 500 MW balance on-line in Summer 2005. PEF Expansion is expected to be on-line and in commercial operation within one year following final CEC certification approval, but that timeframe may be extended due to commercial reasons or market conditions.

1.5 PROJECT OWNERSHIP

- Owner/Operator — Pastoria Energy Facility, LLC

- Transmission Facility Ownership — Southern California Edison. (It is expected that the Pastoria Energy Facility, LLC and SCE will enter into a transmission agreement following completion of the currently ongoing System Impact Study.)

1.6 SCOPE OF ENVIRONMENTAL ANALYSIS

A complete and detailed analysis was conducted to evaluate potential impacts of the PEF Expansion. Sixteen areas of possible environmental impacts were examined. A complete description of this analysis is presented in Section 5.0. Because the PEF Expansion will result in very limited construction and operational changes within the existing site, the PEF will not result in any significant unmitigated environmental impacts. As discussed in Section 5.0, for several issue areas, there are no impacts associated with the PEF. For other issue areas, the PEF will result in impacts that are either insignificant or fully mitigated. A complete discussion of the document organization is included in Section 1.7, below.

1.7 HOW THIS DOCUMENT IS ORGANIZED

In order to provide complete environmental analyses for those disciplines mentioned above, as well as rely on existing PEF 99-AFC-7 material to the maximum extent possible for unchanged project components, the following are key organizational features of this document.

- This document is organized into two volumes. Volume I is formatted similarly to Volume I of the original PEF project AFC (99-AFC-7) with essentially the same section number headings. The three main exceptions are as follows: 1) limited process engineering information is included in Section 3.0, (i.e., Heat and Mass Balance, Electrical, and Water Balance) that would normally be placed in a technical appendix, 2) the Air Quality Technical Report that would normally be placed in a technical appendix is included as part of Section 5.2, Air Quality, and 3) Section 9.0 includes relevant information from the existing PEF including the existing Conditions of Certification, the CEC License Decision for 99-AFC-7, an annotated list of license amendment to 99-AFC-7, and copies of all CEC Orders approving license amendments. In addition, information on emission reduction credits is also included in Appendix F of the Air Quality Technical Report. Volume II contains relevant materials from 99-AFC-7 that are used to support the analysis conducted for the PEF Expansion AFC. The Applicant requests that information from the 99-AFC-7 CEC proceedings be incorporated by reference in this proceeding [CCR 1704 (a)(2)].

1.8 PROJECT PROCESSING

Because much of the analysis for the PEF Expansion relies upon the analysis conducted for 99-AFC-7, the Applicant believes that this project will be able to qualify for a six-month processing schedule. Table 1-2 lists the CEC criteria for six-month processing and denotes where the information to comply with this requirement can be found in the PEF Expansion AFC. In addition, under separate cover, the Applicant expects to file completed Data Adequacy worksheets to assist CEC staff during their review of this application.

TABLE 1-2
COMPLIANCE WITH SIX-MONTH PROCESSING REQUIREMENTS

CEC Six-Month Processing Requirement	Location of Material in the PEF Expansion AFC
Substantial evidence of the project's compliance with laws, ordinances, regulations and standards applicable at the time of certification	Refer to Sections 7.0 and 9.0 of Volume I. A compilation of all existing permits for the existing PEF have been provided to the CEC under separate cover (PEF Permit Book).
Substantial evidence that the project as proposed in the application will not cause a significant adverse impact on the environment	Refer to Section 5.0 (Sections 5.2 through 5.18) of Volume I.
Substantial evidence that the project will not cause a significant adverse impact on the electrical system	Refer to Section 3.0 of Volume I. The system impact study will be provided to the CEC under separate cover.
A discussion of the potential for disproportionate impacts from the project on minority or low income people	Refer to the analysis conducted for 99-AFC-7 included in Attachment I of Volume II.
Information demonstrating the applicant's control by ownership, lease, option, or other legally binding agreement, that the Commission finds acceptable of the proposed site	Refer to Section 3.0 of Volume I and the PEF Permit Book.
A will serve letter or a similar document from each provider of water to the project, including each providers willingness to provide water to the project and describing all conditions under which the water will be provided, and a discussion of all other contractual agreements with the applicant pertaining to the provision of water to the project.	Refer to the discussion of the PEF water plan provided in the Commission's Decision Document for 99-AFC-7 included in Section 9.0 of Volume I. Contractual documents were submitted under separate cover as part of 99-AFC-7 and are herein incorporated by reference.